CLAIMS

1. A composition comprising an immunosuppressive agent and a recombinant adenovirus, wherein the genome of the adenovirus comprises a first recombinant DNA and a second recombinant DNA, wherein the second recombinant DNA contains a sequence coding for an adenoviral gp19k protein.

2. The composition according to claim 1, wherein the immunosuppressive agent is selected from cyclosporin, FK506, azathioprine, a corticosteroid, or a monoclonal antibody or polyclonal antibody that is able to inactivate an immune molecule or induce destruction of an immune cell carrying these molecules.

3. The composition according to claim 2, wherein the antibody is selected from the group anti-CD4, -CD2, -CD3, -CD8, -CD28, -B7, -ICAM-1 and -LFA-1 antibodies, and CTLA4Ig.

4. The composition according to claim 1, wherein the first recombinant DNA encodes a protein.

5. The composition according to claim 1, wherein the first recombinant DNA encodes a human protein.

6. The composition according to claim 1, wherein the first recombinant DNA encodes a ribozyme or antisense RNA.

7. The composition according to claim 1, wherein the first and second recombinant DNAs constitute a single transcriptional entity.

8. The composition according to claim 1, wherein the first and second recombinant DNAs include an identical transcriptional promoter.

9. The composition according to claim 8, wherein the first and second recombinant DNAs are inserted in the same orientation.

10 The composition according to claim 1, wherein the first and second recombinant DNAs are inserted into the same region of the adenovirus genome.

11. The composition according to claim 10, wherein the first and second recombinant DNAs are inserted within the El, E3, or E4 regions.

12. The composition according to claim 1, wherein the first and second recombinant DNAs are inserted into different sites in the adenovirus genome.

13. The composition according to claim 12, wherein one of the first or second recombinant DNAs is inserted within the El region and the other within the E3 or E4 region.

14. The composition according to claim 1, wherein the adenovirus is a defective recombinant adenovirus, which encompasses the ITR sequences and a sequence permitting encapsidation, and which carries a deletion of all or part of the E1 and E4 genes.

15. The composition according to claim 1, wherein the adenovirus contains a deletion in all or part of the El, E3, L5 and E4 genes.

16. The composition according to claim 1, wherein the recombinant adenovirus genome comprises a region of a human Ad 5 or Ad 2 adenovirus.

17. The composition according to claim 1, wherein the sequence coding for an adenoviral gp19k protein is from a wild type human Ad 5 adenovirus.

18. The composition according to claim 1, wherein the sequence coding for an adenoviral gp19k protein contains one or more point mutations compared to the wild type human

Ad 5 adenovirus sequence, and wherein the gp19k protein retains an immunosuppressive activity.

19. A method for expressing a sequence of interest from an adenovirus comprising consecutively or simultaneously administering to a subject an immunosuppressive agent and a recombinant adenovirus, wherein the genome of the adenovirus comprises a first recombinant DNA comprising the sequence of interest and a second recombinant DNA containing a sequence coding for an adenoviral gp19k protein, where the sequence of interest is expressed from the adenovirus.

20. The method according to claim 19, wherein the recombinant adenovirus is administered in vivo.

21. The method according to claim 19, wherein the immunosuppressive agent is selected from cyclosporin, FK506, azathioprine, a corticosteroid, or a monoclonal antibody or polyclonal antibody that is able to inactivate an immune molecule or induce destruction of an immune cell carrying these molecules.

22. The method according to claim 21, wherein the antibody is selected from the group anti-CD4, -CD2, -CD3, -CD8, -CD28, -B7, -ICAM-1 and -LFA-1 antibodies, and CTLA4Ig.

23. The method according to claim 19, wherein the sequence coding for an adenoviral gp19k protein is from a wild type human Ad 5 adenovirus.

24. The method according to claim 19, wherein the sequence coding for an adenoviral gp19k protein contains one or more point mutations compared to the wild type human Ad 5 adenovirus sequence, and wherein the gp19k protein retains an immunosuppressive activity.

25. The method according to claim 19, wherein the first recombinant DNA encodes a protein.

26. The method according to claim 19, wherein the first recombinant DNA encodes a human protein.

27. The method according to claim 19, wherein the first recombinant DNA encodes a ribozyme or antisense RNA.

28. The method according to claim 19, wherein the first and second recombinant DNAs constitute a single transcriptional entity.

29. The method according to claim 19, wherein the first and second recombinant DNAs each include an identical transcriptional promoter.

30. The method according to claim 29, wherein the first and second recombinant DNAs are inserted in the same orientation.

31 The method according to claim 19, wherein the immunosuppressive agent is administered both before and after administration of the adenovirus.

32. The method according to claim 19, wherein the immunosuppressive agent and the recombinant adenovirus are administered simultaneously.

33. The method according to claim 19, wherein the adenovirus is administered by injection.

34. The composition according to claim 1, wherein the first recombinant DNA comprises a coding sequence for p53, aFGF, bFGF, factor VIII, or factor IX.

35. The composition according to claim 34, wherein the first recombinant DNA comprises a coding sequence for p53.

36. The method according to claim 19, wherein the first recombinant DNA comprises a coding sequence for p53, aFGF, bFGF, factor VIII, or factor IX.

37. The method according to claim 36, wherein the first recombinant DNA comprises a coding sequence for p53.

38. A method of prolonging the survival of a cell expressing a sequence of interest, comprising

introducing a recombinant adenovirus to a cell of an animal, the genome of the adenovirus comprising a first recombinant DNA containing the sequence of interest and a second recombinant DNA containing a sequence coding for an adenoviral gp19k protein,

treating the animal with an immunosuppressive agent, and

detecting the presence of mRNA or protein expressed from the sequence of interest, whereby the expression of the sequence of interest results in prolonged cell survival.

39. The method according to claim 38, wherein the sequence of interest encodes a protein, ribozyme, or antisense RNA.

40. The method according to claim 38, wherein the sequence of interest encodes a human protein.

41. The method according to claim 40, wherein the sequence of interest comprises a coding sequence for p53, aFGF, bFGF, factor VIII, or factor IX.

42. The method according to claim 41, wherein the sequence coding for an adenoviral gp19k protein is from a wild type human Ad 5 adenovirus.

43. The method according to claim 38, wherein the sequence coding for an adenoviral gp19k protein contains one or more point mutations compared to the wild type human Ad 5 adenovirus sequence, and wherein the gp19k protein retains an immunosuppressive activity.

44. The method according to claim 41, wherein the sequence of interest comprises a coding sequence for p53.